ACADEMY OF SCIENCES OF THE USSR
TRANSACTIONS OF THE KAMCHATKA VOLCANOLOGICAL STATION. V. 3

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ITINERARY GEOLOGICAL OBSERVATIONS IN THE SOUTH OF KAMCHATKA

Summary

The region described represents a distinctly pronounced volcanic region. Within the greater part of the area there are developed old volcanic deposits formed of basalt, andesite and dacite material (lavas and tuff-breccias). The basaltic material is confined mainly to the lower portion of the deposits; and the dacitic material, to the upper part. The whole of these rocks, no less than 1000—1200 m thick., has been broken by vertical movements into a number of blocks, which project either in the form of isolated flat-topped mountains with gently inclined summits or in groups of the shape of short ridges. In the divide part of the region these blocks have sunk, and in their place a volcanic plateau has been formed by a cover of recent lava material. On the surface of the plateau the massifs of the present volcanoes are situated.

Amidst the explosion material of the Ilyinsky and Ksudach (Stübel's) volcanoes frequently occur fragments and boulders of porphyrites, their tuffs and quartz diorities — rocks typical of the Mesozoic-Paleogene formations of the more northerly regions of the peninsula. Their occurrence here indicates that in this region they most probably underlie a thickness of above characterized old lava deposits. The age of the latter, therefore, may be assumed to be not older than the Noegene. In the western parts of the region, judging from the rich content of methane in the gases of hot springs, at the base of the old lava deposits there probably lie sedimentary Paleogene or Miocene deposits, containing bitumen, which are analogous to those exposed at the surface considerably further north of our region.

The present volcanoes of the region are morphologically defined as (1) conical strato-volcanoes (Koshelev, Ilyinsky and Zheltovsky); (2) volcanic domes (Dikii Greben and Sakhach); (3) calderas (Ksudach); (4) embryonic acting only once (cinder cones). They are formed primarily of andesites, less frequently of dacites (Dikii Greben) and basalts (Sakhach and cinder cones). The absolute heights of the volcanoes do not exceed 2000 m.

Confined to the fault lines which have determined the block structure of the region are the issues of hot mineral waters and all the volcanic mountains. Particularly well the linear directions are traced following the cinder cones. The azimuth of the fault lines are primarily north-eastern and north-western ones.

Of the useful minerals, the region is the richest in deposits of pumice and in thermal springs. The latter are partly used for medicinal purposes